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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,847	06/20/2003	Keith C. Hong	008-02	8487

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PHILADELPHIA, PA 19103

EXAMINER

TSOY, ELENA

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 08/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/600,847

Applicant(s)

HONG ET AL.

Examiner

Elena Tsoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 26 and 27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/23/04, 10/4/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-25, drawn to a process for producing algae resistant roofing granules, classified in class 427, subclass 212.
- II. Claims 26-27, drawn to a process for producing algae resistant roofing shingles, classified in class 427, subclass 180.

Distinctness

The inventions are distinct, each from the other because:

Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case granules can be used for outdoor surfacing other than roofing.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Alex R. Sluzas on August 8, 2005 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-25. Affirmation of this election must be made by applicant in replying to this Office action. Claims 26-27 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joedicke (US 20040110639).

Joedicke teaches that prior art algae-retardant granules comprising inner layer with a substantial loading of cuprous/zinc compounds and outer coloring layer have insufficient rate of copper/zinc release due to low porosity of the outer coating, which acts as a *barrier* to copper/zinc ion migration (See P16). Joedicke teaches that the rate of copper/zinc release can be increased by incorporating an internal gas-forming compounds in the outer coloring layer, which also has cuprous/zinc compounds, by rendering the outer coating *porous* (See P19). The process comprises applying to base granules a first coating composition containing sodium silicate, a kaolin clay (aluminosilicate), (80-150 + 25) parts (claimed more than 2 %) a combination of cuprous oxide and zinc sulfide, and **pigment** (See P29, Table); kiln-firing the coated granules, cooling the fired coated granules (See P29-34), and applying to the algicide bearing granules an outer coating composition containing sodium silicate, a kaolin clay, an internal gas forming compound, the cuprous/zinc compounds and a pigment, and kiln-firing the

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colorant-coated algicide bearing granules 890-910 °F (432-488°C) to insolubilize the binder (See P38) and form microvoids (claimed voids of less than 2 mm) in the coating layer (See P42). The internal gas forming compounds including a member selected from the group consisting of hydrogen peroxide, alkali metal perborates, alkali metal persulfates, alkali metal borohydrides, and alkali metal azides is present in the second or outer coating in the amount of from 0.25% w/w to about 2.5% w/w based on the dry weight of the coating composition, to render the second or outer coating porous and thereby increasing the rate of algicidal leaching (See P19).

Joedicke fails to teach that the inner coating also includes the internal gas forming compounds.

It is the Examiner's position that the outer layer of Joedicke having would have greater copper/zinc release rate than the inner layer since the inner layer is less porous than the outer layer. or it would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant pore size (including those of claimed invention) in Joedicke '639 through routine experimentation in the absence of showing of criticality.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated internal gas forming compounds in both layers of algae-retardant granules of Joedicke with the expectation of providing the desired increased rate of algicide release since increased porosity of the outer layer removes barrier to the inner layer, as taught by Joedicke, and obviously, the increased porosity of the inner layer would increase algicide release *within* the inner layer itself.

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3. Claims 3-11, 16-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joedicke '639 in view of JP 60147276.

Joedicke '639 are applied here for the same reasons as above. Joedicke '639 fails to teach that the outer layer is applied to unfired inner layer and both layers are fired simultaneously (Claim 3).

JP 60147276 teaches that firing simultaneously two clay-containing glaze layers allows the layers to diffuse into each other and form a diffusion layer having mechanical strength (See Abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the outer layer to unfired inner layer in Joedicke '639 and fired both layers simultaneously with the expectation of providing the desired diffusion layer having mechanical strength, since JP 60147276 teaches that firing simultaneously two clay-containing glaze layers allows the layers to diffuse into each other and form a diffusion layer having mechanical strength.

As to claim 16, Joedicke '639 teaches that the pigments include: titanium dioxide, chromium oxide, yellow iron oxide, red iron oxides, black iron oxide, chrome titanate (claimed transition metal oxides) (See P21).

As to pore size, thickness and concentration limitations, It is held that it is not inventive to discover the optimum or workable ranges of result-effective variables by routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant pore size, thickness and concentration parameters (including those of claimed invention) in Joedicke '639 in view of JP 60147276 through routine experimentation in the absence of showing of criticality.

4. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joedicke '639 in view of JP 60147276, further in view of McMahon (US 3,507,676).

Joedicke '639 in view of JP 60147276 are applied here for the same reasons as above. Joedicke '639 in view of JP 60147276 fails to teach that ZnO can be used as algicide.

McMahon teaches that ZnO is suitable for the use as algicide in coating of roofing granules (See column 1, lines 14-15).

It is held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used ZnO as algicide in Joedicke '639 in view of JP 60147276 since McMahon teaches that ZnO is suitable for the use as algicide in coating of roofing granules.

5. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joedicke '639 in view of JP 60147276, further in view of Hojaji et al (US 4430108).

Joedicke '639 in view of JP 60147276 are applied here for the same reasons as above. Joedicke '639 in view of JP 60147276 fails to teach that sugar is used as gas-forming material.

Hojaji et al teach that sugar is suitable for the use as gas-forming material (See column 8, lines 47-57) in glass compositions for roof shingles (See column 4, lines 19-20).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a sugar as gas-forming material in Joedicke '639 in view of JP 60147276 since Hojaji et al teach that sugar is suitable for the use as gas-forming material in glass compositions for roof shingles.

6. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joedicke (US 4378408) in view of Joedicke '639.

Joedicke '408 discloses all claimed limitations except for the layer having algicide material.

Joedicke '639, as applied above, teaches that the addition of algicide material in a coating layer renders roofing granules algae-resistant.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have added an algicide material to a coating layer of Joedicke '408 with the expectation of providing the desired algae-resistant roofing granules, as taught by Joedicke '639.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is (571) 272-1429. The examiner can normally be reached on Mo-Thur. 9:00-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-141523. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy
Primary Examiner
Art Unit 1762

ELENA TSOY
PRIMARY EXAMINER
ETsoy

August 11, 2005